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Scotolemon doriae Pavesi, 1878 – a soil-dwelling harvestman new to Britain (Opiliones: Phalangodidae)

David T. Bilton

Marine Biology & Ecology Research Centre, School of Biological and Marine Sciences, University of Plymouth, Drake Circus, PLYMOUTH PL4 8AA. email: d.bilton@plymouth.ac.uk

Introduction

The opilionid suborder Laniatores, whilst globally diverse, contains relatively few European species, most of which occur in and around the Mediterranean Basin (Martens 1978). The phalangodid *Scotolemon doriae* Pavesi, 1878 was described from the province of Latium in central Italy, and has subsequently been recorded widely in the north Mediterranean region, from Italy (including Sardinia and Sicily), Corsica, southern France and Croatia (Delfosse 2004, Delfosse & Iorio 2015, Martens 1978, Thaler 1996). Outside this area, *S. doriae* has been reported from the city of Paris (Iorio & Delfoss 2016), and most recently from woodlands in Loire-Atlantique in north-western France, the first time this harvestman has been found in a rural location in northern Europe (Iorio & Racine 2017). A little over one year since these French records, the species was discovered in the city of Plymouth, Devon, UK, this being the first record of *S. doriae*, and the first outdoor record of a member of the suborder Laniatores, in Britain. This note provides details of the find, together with an illustrated description which will allow the species to be recognised within the British fauna.

Methods

Specimens were obtained by hand searching under stones and preserved in 70% ethanol. Individuals were studied using Leica MZ8 and 205C stereomicroscopes, with a Fluopac FP1 fluorescent illuminator. Habitus photographs were taken with a Canon EOS 500D camera fitted to a Leica Z6 Apo macroscope, with a 2x objective lens. Specimens were held in place using alcohol-based hand sanitiser gel and illuminated using a Leica LED5000 HDI dome illuminator to avoid shadow. Male genitalia were mounted on glass slides in Kisser's glycerol gelatine (see Riedel

2005) and imaged using an Olympus CX31 microscope with the same camera. All image stacks were produced by hand, and combined using Zerene Stacker software (www.zerenesystems.com). Terminology follows Hillyard (2005), Murphree (1988) and Schultz & Pinto-da-Rocha (2007).

***Scotolemon doriae* Pavesi, 1878** (Figs. 1–7)

Material examined: 6♂♂, 5♀♀, 31 December 2017–1 January 2018, Ford Park Cemetery, Plymouth, Devon, UK, 50˚23'01''N 4˚08'38''W, 22m a.s.l.

Diagnosis: Within the British fauna *S. doriae* can be recognised by the following combination of characters: Body length < 2 mm; pale orange yellow in colour (Figs. 1–3). Ocularium domed, ocelli small, yellow and inconspicuous (Figs. 1–2). Claws of legs I–II single, those of legs III–IV double. Pedipalps long, robust, spiny (Figs. 1, 3); tibiae and tarsi with two rows of spine-tipped tubercles ventrolaterally. Pedipalp claw large, curved, ca. 1/3 length of tarsus. The structure of the male trochantal apophyses (Fig. 1) and penis apex (Figs. 4–5) are diagnostic within the genus *Scotolemon*.

Description: Body length 1.5–1.7 mm; length of second leg 3.0–3.2 mm. Body brownish orange-yellowish; segmental junctions somewhat darker; ocelli yellow (Figs. 1–3). Dorsum (Fig. 2) with scutum and three free tergites. Scutum with transverse groove and constriction separating pro and opisthosoma. Ocularium domed, situated close to anterior margin of prosoma (Figs. 1–2). Ocelli small, situated laterally, below middle of ocularium. Opisthosomal section of scutum divided into five sections by shallow, transverse grooves. Entire dorsal surface covered in small, low, scale-like tubercles. Venter with sternum and genital operculum enclosed by leg coxae (Fig. 3). Opisthosoma with six sternites and anal operculum. Sculptured

as dorsum. Chelicerae with basal segment swollen apically; distal segment with long, fine setae. No obvious sexual dimorphism. Pedipalps (Figs. 1, 3) robust, with large spine-tipped tubercles (megaspines) and smaller, finer setae. Megaspines distributed as follows: Femur – 3 ventral, 1 mesal; patella – 1 ventral, 1 ventro-mesal; tibia – 2 ventro-mesal, 2 ventro-ectal; tarsus – 2 ventro-mesal, 2 ventro-ectal. Tarsus with additional smaller spines clustered ventrally and laterally, close to apex. Megaspines of tibiae and tarsi longer than their respective segments. Apical claw stout, ca. 1/3 length of tarsus. Legs yellowish brown, tarsi and apex of metatarsi whitish, tarsal formula 3, 5, 4, 5. Coxae II–IV with stout, blunt tubercles ventrolaterally. All coxae and trochanters with small, round, contiguous tubercles; femora, patellae and metatarsi also with contiguous tubercles, but here weak, low, resembling reticulation. All leg joints with fine, pale setae. Trochanter of male (Fig. 1) with long, curved apophysis, ca. 1.5x length of segment; shape characteristic. Trochanter of female unmodified. Penis (Figs. 4–5) with apex of truncus with truncate, notched ventral plate, recurved ventrally. Armed with stout, curved, basally-directed spines, larger apicolaterally. Genital operculum (Fig. 3) transverse, broadly rounded anteriorly, almost straight posteriorly. More transverse in female than male.

Discussion

Scotolemon doriae is now the 29th opilionid recorded from Britain (Hillyard 2005, Richards 2010, M. Richardson, *pers. comm.*) and, like a number of recently discovered species, is almost certainly an introduced member of the fauna. In Plymouth, specimens were observed under stones partly embedded in the soil, in an urban cemetery established in the mid-19th Century. All specimens were found clinging to the underside of stones, above areas where cavities were clearly visible in

the adjacent soil (see Figs. 6–7). They occurred together with the millipedes *Brachychaeteuma melanops* Brade-Birks & Brade-Birks, 1918, *Chordeuma proximum* Ribaut, 1913, *Melogona gallica* (Latzel, 1884) and *Polydesmus barberii* Latzel, 1889, as well as the amphipod *Architalitrus dorrieni* (Hunt, 1925). In June 2015 the harvestman *Nemastomella bacillifera* (Simon, 1879), currently known in the UK only from Plymouth, was recorded at the site (*pers. obs.*). Both *N. bacillifera* and *S. doriae* are almost certainly introduced to the Plymouth area, as they are restricted to synanthropic locations and these records are far outside their apparent native ranges in southern Europe. The two species may have been present in the area for some time, however. *Nemastomella* is known from four localities across the city of Plymouth, and *Scotolemon*, whilst so far known only from a single location, is apparently widespread there. A single male was found on 31 December 2017, when it was almost passed over in the field as a large mite. A return visit the next day revealed that the species was present across most of the site, more than twenty specimens being observed in just under an hour. On both occasions, soil was saturated following previous heavy rain, and return visits on 5 & 6 January 2018, following drier, colder conditions produced only one specimen in two hours. As noted by previous authors (Iorio & Racine 2017, Juberthie 1957, Martens 1978) *S. doriae* appears to require relatively humid conditions and may be active close to the soil surface only during wetter periods of the year. This, and its superficial resemblance to a large soil mite, may mean that it has previously been overlooked in Britain and indeed other areas of northwest Europe.

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Figure legends

Figs. 1–3. *Scotolemon doriae* Pavesi, 1878. **1** ♂ lateral habitus; **2** ♂ body, dorsal view; **3** ♀ body, ventral view. Scale bars = 1 mm.

Figs. 4–5. *Scotolemon doriae* Pavesi, 1878. penis. **4** penis**,** ventral view; **5** penis, lateral view. Scale bar = 0.1 mm.

Figs. 6–7. *Scotolemon doriae* Pavesi, 1878. **6** overview of habitat in Plymouth; **7** microhabitat – inset live specimen on underside of stone.